

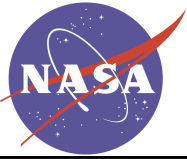
*Kepler*

*A Search for Habitable Planets*

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**Kepler Guest Observer Program Briefing  
AAS / St. Louis  
June 4, 2008**

**Pamela Marcum  
Kepler Program Scientist**

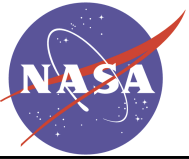


# Agenda



*A Search for Habitable Planets*

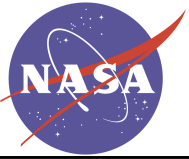
- Introduction to the Kepler mission
- Science team & Kepler Project activities
  - instrument characterization
  - ground-based characterization of the FOV
- GO program description
  - overview
  - timeline
  - target constraints & program guidelines
  - GO input catalog
- Q&A



# GO Overview



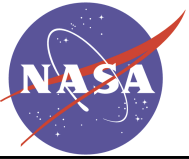
- The Guest Observer office
  - to be located at NASA Ames.
  - website will have links to proposer tools (handbook, FAQ, etc.)
- Data will be made available to observers through STScI's MAST, and will be archived there following the proprietary period.
- Kepler GO solicitations are planned annually over the 3.5 year mission life.
- ~3000\* targets at 30-minute cadence, and 25\* targets at 1-minute cadence, are reserved for the GO program.



# GO Overview



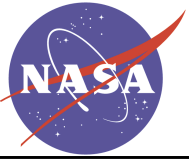
- Cycle 1 duration:
  - funding awards will have a 1 year duration.
  - all Cycle 1 observations end after 1-year.
  - for projects requiring target monitoring >1yr, a proposal will have to be submitted for each additional year requested.
- Data proprietary period:
  - the clock will “start” counting down only after all available proposed data is delivered to MAST.



# GO Overview



- ~\$1.8M/yr budget
- A cost cap, rather than a detailed budget justification, will be required in Cycle 1 Phase 1 proposals that will be requesting funding.
  - Selected proposals will be recommended for Kepler GO observing time and become candidates for funding, subject to the Phase 2 review process.
  - The reasonableness and realism of the proposed cost of the investigation will be evaluated in Phase 2.
  - The total budget requested in Phase 2 may not exceed the cost cap given in the Phase 1 proposal.

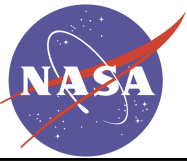


# Timeline



- Solicitation (via ROSES2008): NLT mid-June
- Deadline: NLT Oct 1, 2008
- Cycle 1 GO observations begin: NLT June, 2009

**GO Program Guidelines**



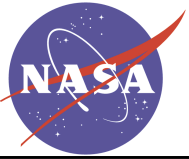
# GO Targets



*A Search for Habitable Planets*

- A suitable GO target would be one that is ...
  - a stellar or extended source, Galactic or extragalactic
  - selected to fully utilize the use of high-precision light curves taken with nearly continuous monitoring over long periods of time.
  - $9 \leq m_V \leq 15$   
*photometric precision: 20 ppm on  $m_V=12$  (G2V,  $t=6.5\text{hr}$ )*
- Targets of opportunity can be accommodated, but with certain limitations.
- The most compelling proposals will be those focussed on astrophysical studies that are different from that of the mission's prime science.

**GO Program Guidelines**



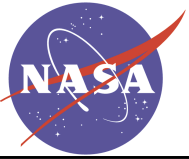
# GO Target Constraints



- Cycle 1 observations must be made in units of ~93 days (e.g., quarterly roll), up to a maximum duration of 1 year.
  - at each quarterly roll, new targets may replace old ones over the course of the year.
- A GO target must ...
  - be located on active silicon in the fixed Kepler FOV  
*Kepler will NOT do observations at other pointings away from  $\alpha=19^{\text{h}} 22^{\text{m}} 40^{\text{s}}$ ,  $\delta=44^{\circ} 30' 00''$*
  - NOT already be a Kepler prime mission target

**GO Program Guidelines**



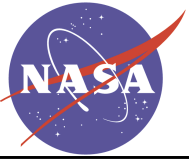


# GO Input Catalog



- The Kepler prime targets will not be finalized until shortly before launch and AFTER the GO solicitation is released.
- To both enable the GO program to get started shortly after launch AND also to avoid overlap with the currently-unidentified Kepler prime targets, the GOIC catalog will indicate a subset of objects from which the majority of Kepler prime targets will be selected.
- Objects that lie within this region should be avoided as GO targets.
- There will be objects within this region that are unlikely to end up on the prime target list. Such objects may be used as GO targets, given that the proposal provides justification for choosing them.
- The use of the GOIC is a one-time situation for Cycle 1 only. In future GO Cycles, the prime targets will be identified, and a much larger number of objects will be available for use as GO targets.

## GO Program Guidelines

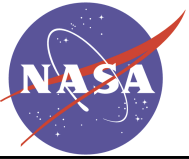


# GO Target Specification



OBJECT	RA	Dec	mv	On-source monitoring				S/N	Flag	Comment
				Q1	Q2	Q3	Q4			
STAR1	xx:xx:xx.x	+xx:xx:xx.x	17.02	1	1	30	30	5	ST	Fainter than KIC limit
STAR2	xx:xx:xx.x	+xx:xx:xx.x	14.12	30	30	30	30	20	1	
STAR3	xx:xx:xx.x	+xx:xx:xx.x	13.88	X	X	30	30	40	0	$\delta$ Scuti, $\Delta m=0.3$
QSO1	xx:xx:xx.x	+xx:xx:xx.x	18.01	30	30	X	X	5	EX	quasar
STAR4	xx:xx:xx.x	+xx:xx:xx.x	>16	30	X	X	X	10	1, TOO	nova
STAR5	xx:xx:xx.x	+xx:xx:xx.x	15.25	1	1	1	1	30	1	

**GO Program Guidelines**



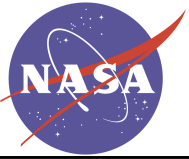
# GO Data Constraints



A thorough understanding of the noise sources and systematic errors will be needed by observers who plan to generate their own light curves from the original data, particularly for:

- Data taken over a period longer than time between quarterly rolls\*
- Data sequences spanning one or more quarterly s/c rolls
- The study of variability phenomena having amplitudes  $<100\text{ppm}$ .

**GO Program Guidelines**



**Questions?**